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07 JUL 1969

MEMORANDUM FOR: Executive Director, NPIC

SUBJECT: NATO Symposium on Image Evaluation

1. In support of our request for [] to attend the NATO Symposium on Image Evaluation, I would like to underscore the relevance of the agenda to the R&D activities of the Development and Engineering Division, TSSG.

2. Topics for discussion at the 18-22 August meeting parallel several highly active DED efforts:

a. [] is scheduled to discuss "Sensor Design Requirements." Here is an area too long overlooked by the exploiters of reconnaissance information. Fortunately, the tide has begun to turn, and the Symposium affords another opportunity to more fully appreciate an expert's thoughts on the matter within the user's frame of reference.

b. [] is known to DED through his efforts in real time displays. His paper, "Scan and Raster Line Effects upon Usefulness of Television Displays", as well as "Television Acquisition of Ground Targets During High Speed, Low Level Flights" by Professor [] appear to be in line with our Real Time Exploitation (Systems Research), Digital Image Restoration, and Line Scan Research programs.

c. The work of [] on "Evaluation of Night Vision Systems" and that of [] on "Dynamic Visual Acuity" address the same problems as the NPIC Visual Process Research program, namely, visual capabilities in the context of photo-interpretation.

d. The DED Imagery Interpretation Process Research program (specifically research on hunting, reasoning, and PI target knowledge), and our Real Time Exploitation activities are in line with "Towards a Theory of Visual Search" by []

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GROUP 1
Excluded from automatic
downgrading and
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("Eye Movements in Visual Search"), [REDACTED] 25X1
[REDACTED] ("The Effect of Target 25X1
Movement on Visual Search"), [REDACTED] 25X1
[REDACTED] ("A Gradient Theory of Visual Detection"), 25X1
[REDACTED]
("Image Evaluation for the Prediction of Performance of a Human Observer") will also address the same general areas.

e. Research by [REDACTED] and his students at 25X1
[REDACTED] on "Instrument 25X1
Myopia" has been followed closely by DED and several of our
consultants and contractors. [REDACTED] 25X1
[REDACTED]
[REDACTED] are collaborating under contract to NPIC to determine
and eventually specify microscope design criteria that will take
into account the human visual capabilities and limitations.
[REDACTED] work has proven to be an invaluable pre-
liminary step in this direction.

f. Similarly, our Imagery Analysis and Manipulation pro-
gram (Image Processing Study, Photo-Optical Systems Evaluation
and Image Restoration), Interpretation Instruments and Tech-
niques program (Display System R&D and Specialized Film Viewers),
Imagery Interpretation Process Research (Color Evaluation and
Ground Resolution Studies), Mensuration Techniques and Equipment
and Image Quality Determinants activities are directly related
to the work of [REDACTED] ("The Effect 25X1
of Image Contrast and Resolution on Target Detection and Identi-
fication. The Effect of Color Combinations in Reconnaissance
Displays") and [REDACTED] 25X1
[REDACTED] ("Contrast Sensitivity in Instrument
Vision").

g. [REDACTED] 25X1
[REDACTED] ("Contributions of Automatic Pattern Recognition
to the Study of Human Pattern Perception") has maintained an
active, though informal, relationship with DED personnel con-
cerned with the Automatic Target Recognition program.

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3. In view of the relevance of the proposed agenda to DED in-house and contractual R&D programs, I recommend that be permitted to attend the NATO Symposium.

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Chief, Technical Services and Support Group,
NPIC

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